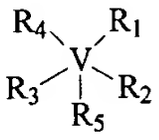
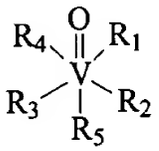
WE CLAIM:

1. A method for inhibiting angiogenesis comprising administering to a subject an effective angiogenesis inhibiting of a vanadium compound having the following structure:



(I)



(II)

wherein,

R_1 and R_2 are each independently a monodentate ligand or together form a bidentate ligand;

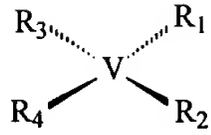
R_3 and R_4 are each independently a monodentate ligand or together form a bidentate ligand; and

R_5 is a monodentate ligand, or is absent.

2. The method of claim 1, wherein each monodentate ligand is selected from the group consisting of halo, OH_2, O_3SCF_3, N_3, CN, OCN, SCN, SeCN, and a cyclopentadienyl ring, wherein the cyclopentadienyl ring is optionally substituted with one or more (C_1-C_3)alkyl, and each bidentate ligand is selected from the group consisting of acac, Bpy, Hfacac, Cat, Dtc, PH, H, Phen, or a derivative thereof.

3. The method of claim 2, wherein each bidentate ligand is optionally substituted with one or more of halo, (C_1-C_3) alkyl, (C_1-C_3) alkoxy, halo (C_1-C_3) alkyl, or a derivative thereof.

4. The method of claim 1, wherein the vanadium compound has the following structure:



(III)

wherein

R_1 and R_2 are each independently a monodentate ligand or together form a bidentate ligand; and

R_3 and R_4 are each independently a cyclopentadienyl ring, wherein each cyclopentadienyl ring is optionally substituted with one or more $(C_1\text{-}C_3)$alkyl.

5. The method of claim 4, wherein R_1 and R_2 are each independently a monodentate ligand selected from the group consisting of of halo, OH_2, O_3SCF_3, N_3, CN, OCN, SCN, SeCN, and a cyclopentadienyl ring, wherein each cyclopentadienyl ring is optionally substituted with one or more $(C_1\text{-}C_3)$alkyl.

6. The method of claim 5, wherein R_1 and R_2 are each independently halo.

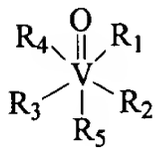
7. The method of claim 6, wherein halo is chloro, bromo, or iodo.

8. The method of claim 6, wherein halo is chloro.

9. The method of claim 4, wherein R_1 and R_2 together form a bidentate ligand selected from the group consisting of acac, Bpy, Hfacac, Cat, Dtc, PH, H and derrivatives thereof.

10. The method of claim 9, wherein the bidentate ligand is acac or a derivative thereof.

11. The method of claim 1, wherein the vanadium compound has the following structure:



wherein

R_1 and R_2 are each independently a monodentate ligand or together form a bidentate ligand;

R_3 and R_4 together form a bidentate ligand; and

R_5 is a monodentate ligand, or is absent.

12. The method of claim 11, wherein R_1 and R_2 are each independently a monodentate ligand selected from the group consisting of halo, OH_2, O_3SCF_3, N_3, CN, OCN, SCN, SeCN, and a cyclopentadienyl ring, wherein each cyclopentadienyl ring is optionally substituted with one or more $(C_1$-$C_3)$alkyl.

13. The method of claim 12, wherein, R_3 and R_4 together form a bidentate ligand selected from the group consisting of acac, Bpy, Hfacac, Cat, Dtc, PH, H, Phen, and derrivatives thereof.

14. The method of claim 11, wherein R_1 and R_2 together form a bidentate ligand selected from the group consisting of acac, Bpy, Hfacac, Cat, Dtc, PH, H, Phen, and derrivatives thereof.

15. The method of claim 1, wherein said vanadium compound is: VCp_2Cl_2, VCp_2Br_2, VCp_2I_2, $VCp_2(N_3)_2$, $VCp_2(CN)_2$, $VCp_2(NCO)_2$, $VCp_2(NCO)Cl$, $VCp_2(NCS)_2$, $VCp_2(NCSe)_2$, $VCp_2Cl\ (CH_3CN)(FeCl_4)$, $VCp_2(O_3SCF_3)_2$, $V(MeCp)_2Cl_2$, $V(Me_5Cp)_2Cl_2$, $VCp_2(acac)$, $VCp_2(hf\text{-}acac)$, $VCp_2(bpy)$, $VCp_2(cat)$, $VCp_2(dtc)$, VCp_2PH, or VCp_2H.

16, The method of claim 1, wherein said vanadium compound is: [VO(phen)], $[VO(phen)_2]$, $[VO(Me_2\text{-}phen)]$, $[VO(Me_2\text{-}phen)_2]$, [VO(Cl-phen)], $[VO(Cl\text{-}phen)_2]$, [VO(bipy)], $[VO(bipy)_2]$, $[VO(Me_2\text{-}bipy)]$, $[VO(Me_2\text{-}bipy)_2]$, and $[VO(Br,OH\text{-}acph)_2]$.

17. A method for treating diabetic retinopathy in a subject, comprising administering to the subject an effective mitosis inhibiting amount of a vanadium compound having the following structure:

(I) (II)

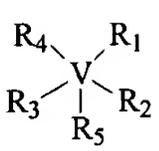
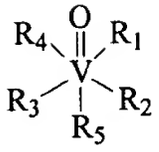
wherein,

R_1 and R_2 are each independently a monodentate ligand or together form a bidentate ligand;

R_3 and R_4 are each independently a monodentate ligand or together form a bidentate ligand; and

R_5 is a monodentate ligand, or is absent.

18. A method for treating restenosis following coronary angioplasty in a subject, comprising administering to the subject an effective amount of a vanadium compound having the following structure:

(I) (II)

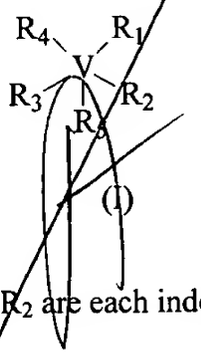
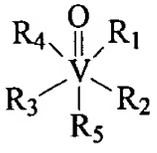
wherein,

R_1 and R_2 are each independently a monodentate ligand or together form a bidentate ligand;

R_3 and R_4 are each independently a monodentate ligand or together form a bidentate ligand; and

R_5 is a monodentate ligand, or is absent.

19. A method for preventing or treating diabetic retinopathy in a subject, comprising: administering to the subject an effective amount of administering to the subject an effective mitosis inhibiting amount of a vanadium compound having the following structure:

(I) (II)

wherein,

R_1 and R_2 are each independently a monodentate ligand or together form a bidentate ligand;

R_3 and R_4 are each independently a monodentate ligand or together form a bidentate ligand; and

R_5 is a monodentate ligand, or is absent.

20. The method of claim 19, wherein the vascular injury is associated with an angioplasty procedure.

21. The method of claim 19, wherein the compound is administered locally through an implantable device.

22. The method of claim 19, wherein said administering comprises administering the vanadium compound prior to induction of vascular injury.

23. The method of claim 19, wherein the compound is administered before and after induction of vascular injury.

24 The method of claim 19, wherein the vanadium compound is administered at least two days before induction of vascular injury.